

ABSTRACT

A switching apparatus provides 1×2 and 2×2 switching functions having significantly reduced crosstalk levels using an imaging arrangement of three arms combined with two star couplers. In another 1×2 switching element embodiment, the input star coupler is replaced with an optical signal splitter. Application of the 1×2 and 2×2 switching elements include the realization of a variety of dilated $N \times N$ broadband switches with negligible crosstalk over very wide wavelength stopband characterized by two or more equally spaced zeros. The very wide crosstalk stopband enables the $N \times N$ broadband switch to switch a broadband wavelength division multiplexed input signal to the desired output port with very low crosstalk at the other output ports.